

Research Article

Comparison of the clinical competence of nurses working in two university hospitals in Iran

Masoud Bahreini, PhD,¹ Shohreh Shahamat, MSc,³ Paritchehr Hayatdavoudi, PhD⁴ and Mostafa Mirzaei, PhD²

¹Nursing School, ²Faculty of Medicine, Bushehr University of Medical Sciences, Bushehr, ³Faculty of Psychology, Marvdasht branch, Islamic Azad University, Marvdasht and ⁴Nursing Administration, Shiraz University of Medical Sciences, Shiraz, Iran

Abstract

Hospitals are integrated with medical universities in Iran and are categorized into three types with respect to educational and health services quality. This cross-sectional study aimed to determine and compare the level of clinical competence of nurses who were working in type 1 and type 2 university hospitals. The clinical competence of all 266 nurses in the two hospitals was assessed by using the self-assessment method. The Nurse Competence Scale, a questionnaire consisting of 73 items, was used to assess the level of clinical competence and the frequency of using skills. The nurses who were working in the type 1 university hospital viewed themselves as more competent than those who were working in the type 2 university hospital. Also, only 70% of the clinical skills were used frequently by the nurses who were working in the type 2 university hospital, in comparison to > 83% for the nurses who were working in the type 1 university hospital. The results can be used for the educational needs assessment of nurses and for modifying the quality of care in hospitals.

Key words

assessment, clinical competence, hospital, Iran, nursing.

INTRODUCTION

Nursing competence is a professional issue and is central to patient care outcomes. However, a lack of clarity about the issue of competence is recognized in the literature (Meretoja *et al.*, 2002). Watson *et al.* (2002) claimed that competence is a nebulous concept that is defined in different ways by different persons. Competence is defined as the professional standards that nurses use to guide their practice (Kaiser & Rudolph, 2003), as the ability to carry out a task with desirable outcomes under varied circumstances in the real world (Benner, 2001), and as something that a person should be able to do (Mansfield & Mitchell, 1996). In this study, competence is defined in terms of the capacity to integrate knowledge, skills, attitudes, and values in specific contextual situations of practice (Meretoja & Leino-Kilpi, 2003).

The value of competence assessment is accepted universally in the nursing literature (Cowan *et al.*, 2005). The assessment of the clinical competence of nurses is particularly important in determining the educational needs of nurses, in exploring fields that require improvement, and also for the favorable delivery of nursing care. Thus, it is a core pivot for improving quality systems, workforce programming, and managing human resources (Meretoja *et al.*, 2004a).

Since 1999, the challenge of assessing nurses' clinical competence has been receiving adequate attention (Girrot, 2000). There is general agreement among all authors that nurses should be assessed in some way so as to be deemed competent in their practice. According to Bradshaw (1998), because of the lack of consensus and the poorly defined nature of competence, the resulting assessment might be disorganized and indistinct, with every method having its own advantages and disadvantages. A range of indicators and tools has been developed for competence assessment, but self-assessment has been reported to be the most common. Self-assessment, the assessment of clinical competence that is done by nurses themselves, gives nurses the opportunity to focus on their own performance in the work environment, which would be useful for modifying and improving their action (Campbell, 2001). Self-assessment allows nurses to play a more active role in the learning process. In addition, it facilitates learning by allowing for reflective thinking (Richardson, 1998). However, the potential issues that are associated with self-assessment include subjectivity, concerns with recording negative experiences, and time constraints (Meretoja *et al.*, 2004a; Fereday & Muir, 2006).

In Iran, the first baccalaureate nursing program was established at the Tehran University of Medical Sciences in Tehran. Currently, there are > 30 nursing schools that offer different nursing programs, such as the baccalaureate nursing program (4 years), the master nursing program (2.5 years), and the PhD nursing program (4.5 years). In addition, the newly established Iranian Nursing Organization (INO) acts

Correspondence address: Masoud Bahreini, Faculty of Nursing and Midwifery, Bushehr University of Medical Sciences, Salman-e-farsi Street, Rishehr, Bushehr, Iran. Email: mbahreini@sums.ac.ir

Received 20 February 2011; accepted 5 May 2011.

as an exclusive nursing regulatory body, which has revolutionized the system of accountability for nurses. The INO is the main agency that is concerned with developing and monitoring the standards of health care and is governed by a 25-member supreme council that consists of 18 members who hold a bachelor of science (BSc) or higher degree in nursing, five practical nurses, one operating room nurse, and one anesthetic nurse. This organization is trying to set standards of minimal competence for nurses and undertakes the responsibility and commitment of securing the public's safety through a social policy, definite standards, scope of nursing practice, and ethical code of practice statements.

After the integration of healthcare delivery systems in universities of medical sciences and the establishment of the Ministry of Health and Medical Education, public universities of medical sciences and their related hospitals now are ranked according to quality development processes, educational development, and the available educational standards under three types (levels). Type one universities of medical sciences and their healthcare settings are of a high standard, but at type two (moderate level) and type three (low level) universities and their related hospitals, there are some limitations and deficits regarding educational standards and healthcare services.

The comparison of the clinical competence of nurses who are working in two different hospital environments would reflect the existing gap in the level of the nurses' competence and the need to have a method for a more precise recognition of the drawbacks in nurses' vocational training. Although this would aid in eliminating the defects in nurses' clinical skills later on, very little information is available about clinical competence and the frequency of using clinical skills by nurses who are working in the different types of hospitals in Iran and still fewer studies have dealt with the assessment of competence in this context.

AIM

The aim of this study was to determine and compare the clinical competence level of nurses and the frequency of using clinical skills in two different university hospitals in Iran.

LITERATURE REVIEW

A number of international studies have evaluated nurses for their level of competence (Redfern *et al.*, 2002; Furaker & Nilsson, 2009). However, nurses' competence profiles in different work environments have received only little research attention. Gronroos and Perala (2008) used a questionnaire to investigate the self-reported competence of 515 home nursing staff members in Finland. A majority of the home nursing staff members reported that their knowledge about client-oriented working methods was quite good. In Asia, Liu *et al.* (2007) developed a tool to measure the clinical practice competencies of Chinese nurses. These studies showed that providing and delivering effective health care and enhancing the transparency of nurse competence are global challenges in both developed and developing countries.

Environmental and organizational factors also can affect nurses' clinical competence, including the available educational possibilities, preservice and in-service education, and supervision and control. A comparative, quantitative study was carried out in Britain to assess the clinical competence of 80 nurses who were trained under two different educational programs. The results revealed a significant statistical difference regarding clinical competence between these two groups immediately after graduation and at 6 months and 12 months postgraduation (Bartlett *et al.*, 2000). In Iran, no such study was found that had investigated and compared competences in relation to the type of area of work.

It was noted that a discrepancy between possessing skills and using them was investigated in order to indicate the importance of workplace differences in relation to the quality of nurses' actions. Some studies revealed a direct relationship between the level of clinical competence and the frequency of using clinical skills. Thus, a higher level of clinical competence of a nurse would result in a higher performance of the nurse's skills in the clinic (Meretoja *et al.*, 2004a).

METHODS

Design, setting, and participants

In the present cross-sectional study, a convenience sample of registered nurses was recruited, consisting of nurses who were working in two hospitals in southern Iran that contained 395 and 330 active beds. These two hospitals are the major therapeutic and educational centers of the two universities of medical sciences that have similarities related to the characteristics of the nurses who work in these hospitals and the nature of the work that is undertaken. These two hospitals are located in two neighboring provinces with similar cultural characteristics but they have different levels: one is affiliated to a type 1 university of medical sciences and the other is affiliated to a type 2 university of medical sciences. The nurses in each hospital participate in in-service education programs, based on the policies and facilities of the respective hospital.

The sample comprised registered nurses who were working in the emergency rooms or medical, surgical, maternity, pediatrics (as general wards), intensive care, or coronary care units in either of the two hospitals. The inclusion criteria were: (i) graduation from the BSc nursing program; and (ii) working full-time in these university hospitals as a nurse. From the total sample, 164 of 280 (58.5%) nurses from the type 1 university hospital and 102 of 210 (48%) nurses from the type 2 university hospital completed the questionnaire.

Ethical considerations

The research protocol was approved by the research ethic committees of Bushehr University of Medical Sciences and Shiraz University of Medical Sciences. The approval for data collection was obtained from the nursing administrators of the hospitals. The data collection and handling processes were carried out anonymously. The respondents agreed to participate after receiving a written description and further verbal information about the study.

Data collection

The participants were asked to complete the questionnaire on their own and deliver them to the nursing office within a period of 4 weeks. The period of data collection was between May and June 2010. The nurses required ~20–30 min to complete the instrument. The completion and return of the questionnaire was considered as their willingness to participate in the research.

The instrument that was used in this study was the Nurse Competence Scale, a questionnaire that is used for measuring the level of clinical competence of nurses and the frequency of using their clinical skills. This instrument was designed by Meretoja *et al.* (2004a), according to Benner's theoretical framework of "from novice to expert" (Benner, 2001). Meretoja *et al.* (2002) took several steps to establish the content validity of the Nurse Competence Scale by using experts and a pilot test. The instrument was further tested and was found to be valid and reliable in a cross-sectional study (Meretoja & Leino-Kilpi, 2003; Meretoja *et al.*, 2004b). The level of internal consistency among the seven categories varied between 0.79 and 0.91 (Meretoja *et al.*, 2004a). The Nurse Competence Scale consists of 73 items that are organized into seven competence categories: "helping role" (seven items), "teaching-coaching" (16 items), "diagnostic functions" (seven items), "managing situations" (eight items), "therapeutic interventions" (10 items), "ensuring quality" (six items), and "work role" (19 items) (Table 1, Appendix I).

The level of nursing competence was measured with a visual analog scale (VAS) as part of the instrument, with 0 suggesting a very low level and 100 suggesting a very high level of clinical competence. Finally, the mean of competence for each of the 73 skills of competence across the categories and the mean of the overall competence were determined. The possession of clinical competence does not necessarily indicate the use of that skill in the clinical setting. Thus, the nurses were asked to identify the level of the actual usage of each skill in the ward in which they were currently working on a four-point Likert scale. In this scale, 0 = "not used", 1 = "used rarely", 2 = "used occasionally", and 3 = "used frequently". Thus, the nurses not only determined the level of their own competence but also the frequency of using each skill in clinical practice.

The Nurse Competence Scale first was translated into Persian by the researchers. Later, it was translated back into English by two translators. Finally, the accuracy of the translation was approved by two English-language experts. A panel of experts was used to evaluate the content validity of the scale items. The Content Validity Index value of the instrument was calculated as 0.83, based on experts' ratings of the items' relevance. The reliability of the scale items was established, based on a pilot study ($n = 20$) and a main study, using an internal consistency reliability coefficient (Cronbach's α). The Cronbach's α for the Nurse Competence Scale in the seven categories ranged from 0.75 to 0.89 in the pilot study and from 0.76 to 0.85 in the main study.

Data analysis

The data analysis was carried out with the SPSS Windows 11.5 Program (SPSS: An IBM Company, Chicago, IL, USA). An individual VAS score of a category for a nurse was calculated as the average VAS score of the items in that category. The VAS mean score of a category was calculated as the group average of the individual VAS scores for that category. An overall VAS score of all the categories for an individual nurse was calculated as the average of the individual VAS scores of the nurse. The mean, median, and standard deviation were used to describe the demographic and clinical competence variables. The frequency percentage was used to describe the frequency of using a skill. In addition, the independent *t*-test was used to identify the significance of the difference between the means of the two groups, while the Pearson's correlation coefficient was used to identify the level of correlation among the variables. In all cases, $P < 0.05$ was considered to be statistically significant.

RESULTS

The median index was a 30 year old nurse with almost 5.5 years of work experience (Table 2). The nurses were working in emergency units ($n = 78$, 29.33%), wards ($n = 102$, 38.34%), and in intensive and coronary care units ($n = 86$, 32.33%). The sample comprised 231 (87%) women and 35 (13%) men. The results revealed that 64 (23.9%) nurses had ≤ 2 years of work experience and 74 (28%) nurses had

Table 1. Seven categories of nursing clinical competence

Category	Description
Helping role	Helping the patient to cope, providing personal and ethical care (seven skills)
Teaching-coaching	Recognizing patient and family educational needs, preparing the patient for self-care, leading and guiding other nurses (16 skills)
Diagnostic functions	Recognizing and analyzing the clinical situation and patients' individual problems (seven skills)
Managing situations	Prompt recognition of changes, co-ordinating and prioritizing procedures appropriately and flexibly (eight skills)
Therapeutic interventions	Making decisions and programming and implementing care based on the clinical situation and consultation with other health workers (10 skills)
Ensuring quality	Goal evaluation and sharing in improving nursing care (six skills)
Work role	Cooperation, accountability, functional independency, and continual professional development and occupational improvement (19 skills)

Table 2. Demographic variables ($n = 266$)

Variable	Mean	SD	Median	Range
Age (years)	31.80	7.32	30.0	22–61
Total nursing experience (years)	7.98	7.02	5.6	0.1–28.50
Current ward experience (years)	4.10	4.54	2.5	0.1–25

SD, standard deviation.

> 10 years of work experience. Four levels were identified, based on the mean of the self-assessment scores for describing and ranking the nurses from a clinical competence point of view. In this ranking, 0–25 was considered as a low level of clinical competence, 26–50 as quite good, 51–75 as good, and 76–100 as excellent.

The results revealed that the nurses who were working in the type 2 university hospital were at the good level, whereas those who were working in the top university hospital (type 1) were at the excellent level. The comparative data of the self-assessment of clinical competence in the seven categories by the nurses in both hospitals are shown in Table 3. The mean score in the type 2 university hospital ranged from 63 to 76 for all the categories of clinical competence, whereas it ranged from 83 to 89 in the type 1 university hospital. As noted above, the difference in the mean of clinical competence between the two hospitals in all the categories was significant ($P < 0.01$). The nurses of these two hospitals claimed that their level of competence was highest in the category of “management situations”. In contrast, the lowest level of competence for the nurses who were working in the type 2 university hospital was in the category of “teaching–coaching”, while in the type 1 university hospital, it was in the category of “ensuring quality”.

The results from measuring the individual skills revealed that the highest level of competence in the type 2 university hospital was in the skills of “decision-making guided by ethical values” (mean = 86.40) under the category of “helping roles” and “keeping nursing care equipment in good condition” (mean = 83.98) under the category of “managing situations”. In contrast, the lowest level of competence was shown for the skills of “utilizing information technology in my work” (mean = 58.29) under the category of “work role” and “evaluating patient education outcomes with the care team” (mean = 58.47) under the category of “teaching–coaching”. Those nurses who were working in the type 1 university hospital recognized their maximum competence in the skills of “keeping nursing care equipment in good condition” (mean = 93.31) and “decision-making guided by ethical values” (mean = 90.27). However, they showed the least amount of competence in the skill of “utilizing nursing research findings in relationships with patients” (mean = 76.16) under the category of “helping roles”.

In the present study, the level of using the clinical skills in the seven categories also was compared. The results revealed that ~ 30% of these skills were never practiced by those who were working in the type 2 university hospital, in comparison to almost 17% for those who were working in the type 1 university hospital (Table 4). For the nurses who were

working in the type 2 university hospital, the skills that were not used the most were “utilizing research findings in nursing interventions” and “evaluating systematically patient care outcomes”, related to the category of “therapeutic interventions”. However, for the nurses who were working in the type 1 university hospital, the skill that was not used the most was “coaching other staff members in patient observation skills”, related to the category of “diagnostic functions”.

The results of the present study showed that there was no significant relationship between the mean of the clinical competence of nurses and the variables of age ($P = 0.20$, $r = 0.09$), overall work experience ($P = 0.07$, $r = 0.12$), and work experience in the current ward ($P = 0.58$, $r = 0.03$).

DISCUSSION

The main purpose of the present study was to compare the level of clinical competence between the nurses who were working in either of the two main university hospitals in southern Iran. The results that were obtained in this study revealed that those who were working in the type 2 university hospital had evaluated their own level of clinical competence at a significantly lower level, compared to those who were working in the top university hospital (type 1). The results of the studies that were carried out by Garland (1996) and McCaughan and Paraho (2000) also indicated significant differences between the levels of clinical competence of the nurses in different clinical settings. In this study, the higher level of skills of those nurses who were working in the type 1 university hospital could be attributed to more integrated in-service education, a higher availability of equipment, and better organization of continuing education in that hospital. Research by Memarian *et al.* (2006) also showed that environmental and organizational factors, especially the availability of an effective educational system, played a crucial role in nurses' clinical competence.

The nurses in both hospitals believed that they were most competent in the skills and duties that were under the category of “managing situations”. In the individual measurement of skills, the highest level of competence was observed in the skill of “keeping nursing care equipment in good condition”. These findings seem reasonable for university hospitals in which a short period of hospitalization and high-risk patients reflect a need for immediate nursing responses to patient care demands. Despite this similarity, the lowest level of clinical competence in each of the two hospitals was observed in different categories. Those who were working in the type 2 university hospital recognized themselves as less competent in the category of “teaching–coaching”. In particular, the least number of points was given to the clinical skill of “assessing effectiveness of patient education”. However, for those who were working in the type 1 university hospital, the least number of points was given to the category of “ensuring quality”. Safadi *et al.* (2010) observed that the highest level of clinical competence was in the category of “managing situations”, while the lowest level was in the category of “ensuring quality”. These results are similar to those nurses who were working in the top university hospital in this study. However, they are in contrast to those nurses

Table 3. Comparison of nursing clinical competence between two Iranian university hospitals

Category	Type 2 university hospital Mean (SD)	Type 1 university hospital Mean (SD)	<i>t</i> -value	<i>P</i> -value
Helping role	72.79 (15.71)	85.27 (11.96)	6.18	< 0.01
Teaching-coaching	63.77 (17.09)	87.11 (11.27)	12.02	< 0.01
Diagnostic functions	73.38 (15.30)	86.38 (13.01)	6.41	< 0.01
Managing situations	76.18 (15.07)	89.86 (10.32)	7.61	< 0.01
Therapeutic interventions	70.23 (15.43)	86.26 (12.94)	7.73	< 0.01
Ensuring quality	70.06 (16.36)	83.95 (14.27)	6.06	< 0.01
Work role	71.15 (13.78)	86.96 (11.12)	8.34	< 0.01
Total clinical competence	71.07 (13.66)	87.03 (10.03)	9.16	< 0.01

SD, standard deviation.

Table 4. Comparison of the frequency percentages of using skills in the two Iranian university hospitals

Category of competence	Helping role (%)	Teaching- coaching (%)	Diagnostic functions (%)	Managing situations (%)	Therapeutic interventions (%)	Ensuring quality (%)	Work role (%)	Total mean (%)
Type 2 university hospital	74.83	63.90	72.49	79.10	63.24	65.17	70.14	69.83
Type 1 university hospital	88.09	86.30	75.42	88.60	83.77	77.12	83.06	83.19

who were working in the type 2 university hospital. Thus, the low level of clinical competence of the nurses in “teaching-coaching” could be related to a lack of available resources and a deficiency in respect of the necessary knowledge.

The results of the present study revealed the similarities and the differences in the level of clinical competence of the nurses in the two hospitals for each of the 73 skills. The similarities were related mainly to the skills in which the nurses were more competent. It is interesting to note that both groups had the most competence in “decision-making guided by ethical values” (the category of “helping roles”). Maintaining ethical values in the nursing society of Iran is a part of the environmental and organizational differences that originate in the ethical entity of the nursing profession and religious values. Tabari Khomeiran *et al.* (2006) described the factors that are influential in nurses’ clinical competence and emphasized the effect of these driving factors. It was recognized that keeping some ethical values, like maintaining patients’ satisfaction, as one of the internal factors can improve nurses’ clinical competence. The lowest level of competence of the nurses in the type 2 university hospital was observed for “utilizing information technology in my work”, while for the type 1 university hospital nurses, it was for “utilizing nursing research findings in relationships with patients”. Differences between the nurses of these two hospitals were observed in this respect. Deficiencies in hardware equipment, like computers, in the hospitals of less-developed regions are still a serious problem. Thus, the results for those who were working in the type 2 university hospital seem to be accurate. A lack of information technology hardware accessories reduces the impact of in-service education programs. Thus, the lower level of competence of the nurses in this category is expected. The lower competence level of the nurses in the type 1 university hospital, based on the research findings on relationships with patients, illustrates the differences in the educational and

organizational needs and priorities of the hospitals under comparison. Furthermore, it demonstrates the need for nurses to achieve communication skills that are based on the research findings on relationships with patients. The results of some studies also indicate the positive effect of influential communication and respecting the client’s culture in improving nurses’ clinical competence (Yekta *et al.*, 2007).

The situation for the nurses in the type 1 university hospital was more appropriate regarding the use of clinical skills. The results of this study demonstrated that the categories with a lower level of clinical competence were associated with a lower use of those skills. Thus, for the nurses who were working in the type 2 university hospital, the skills that were not used the most related to the category of “therapeutic interventions”. However, for the nurses who were working in the type 1 university hospital, the skills that were not used the most related to the category of “diagnostic functions”. These results are similar to those that were obtained in the studies of Harrison and Nixon (2002) and Jinks and Hope (2000). They demonstrate that a rise in nurses’ competence in special clinical skills would reflect a rise in the possibility of using those skills.

An increase in the age and work experience of nurses could result in an increase in their clinical competence. However, the results of this study indicated no significant correlation between the mean of clinical competence and the nurses’ age or their total and current work experience. However, some studies have reported a significant relationship between the above-mentioned variables (Meretoja *et al.*, 2004a; Salonen *et al.*, 2007). The researchers believe that factors, such as a heavy workload and low income, in the university hospitals lead to the occupational impairment of the nurses. Consequently, they experience inadequate satisfaction in their work, which becomes worse when the age and work experience parameters are increased. Thus, the

nurses represent dissatisfaction in their evaluations. The researchers suggest undertaking further precise studies in order to obtain a better understanding of these results.

Limitations of the study

This study has limited generalizability because of the use of a convenience sample. Another limitation is that the results of this study are derived from the self-assessment of the nurses. Thus, their correctness and precision might be a matter of debate. Consequently, the researchers suggest that the results of the self-assessment of nurses' clinical competence should be compared with other assessment results that are obtained from head nurses and co-workers in later complementary research.

CONCLUSION

The results indicate that the level of clinical competence and the level of use of clinical skills of the nurses who were working in the type 1 university hospital were higher, in comparison to those nurses who were working in the type 2 university hospital. Furthermore, the results revealed that, regarding environmental and organizational diversity, the educational needs of nurses in the two hospitals showed differences that should be brought to the notice of management. The persons who are providing the nursing programs should have adequate knowledge of the clinical competence level of the nurses who are working in university hospitals. This would facilitate better management of human resources and planning of continuous and effective education in order to improve the quality of nursing services. The results can be used to design incentive programs and in-service education that is based on educational needs and to rank nurses according to their level of clinical competence, with the aim of distributing nurses more appropriately in general and specific wards.

ACKNOWLEDGMENTS

The financial support for this study was provided by the research center of Shiraz University of Medical Sciences, Shiraz, Iran. We would like to thank all the nurses and nurse managers who gave us their valuable time by participating in this study.

REFERENCES

- Bartlett HP, Simonite V, Westcott E, Taylor HR. A comparison of the nursing competence of graduates and diplomats from UK nursing program. *J. Clin. Nurs.* 2000; **9**: 369–381.
- Benner PE. *From Novice to Expert: Excellence and Power in Clinical Nursing Practice*. Upper Saddle River, NJ: Prentice Hall, 2001.
- Bradshaw A. Defining 'competency' in nursing (part II): an analytical review. *J. Clin. Nurs.* 1998; **7**: 103–111.
- Campbell B. A discussion of the strengths and weaknesses of 'reflection' in nursing practice and education. *J. Clin. Nurs.* 2001; **10**: 278–283.
- Cowan DT, Norman IJ, Coopamah VP. Competence in nursing practice: a controversial concept – A focused review of literature. *Nurs. Educ. Today* 2005; **25**: 355–362.
- Fereday J, Muir CE. The role of performance feedback in the self-assessment of competence: a research study with nursing clinicians. *Collegian* 2006; **13**: 10–15.
- Furaker C, Nilsson A. The competence of certified nurse assistants caring for people with dementia diseases in residential facilities. *Psychiatr. Ment. Health Nurs.* 2009; **16**: 146–152.
- Garland GA. Self report of competence. A tool for the staff development specialist. *Nurs. Staff Dev.* 1996; **12**: 191–197.
- Girrot EA. Assessment of graduates in clinical practice in the UK – Are we measuring the same level of competence? *J. Clin. Nurs.* 2000; **9**: 330–337.
- Gronroos E, Perala M-L. Self-reported competence of home nursing staff in Finland. *J. Adv. Nurs.* 2008; **64**: 27–37.
- Harrison L, Nixon G. Nursing activity in general intensive care. *J. Clin. Nurs.* 2002; **11**: 158–167.
- Jinks AM, Hope P. What do nurses do: an observational survey of the activities of nurses on acute surgical and rehabilitation wards. *J. Nurs. Manag.* 2000; **8**: 273–279.
- Kaiser KL, Rudolph EJ. Achieving clarity in evaluation of community/public health nurse generalist competencies through the development of a clinical performance evaluation tool. *Public Health Nurs.* 2003; **20**: 216–227.
- Liu M, Kunaiktikula W, Senaratanaa W, Tonmukayakula O, Eriksen L. Development of competency inventory for registered nurses in the People's Republic of China: scale development. *Int. J. Nurs. Stud.* 2007; **44**: 805–813.
- McCaughan E, Paraho K. Medical and surgical nurses' perceptions of their level of competence and educational needs in caring for patients with cancer. *J. Clin. Nurs.* 2000; **9**: 420–428.
- Mansfield B, Mitchell L. *Toward a Competent Workforce*. Gower: Aldershot, UK, 1996.
- Memarian R, Salsali M, Vanaki Z, Ahmadi F, Hajizadeh E. [Factors affecting the process of obtaining clinical competence.] *Scientific J. Zanjan University of Medical Sciences* 2006; **14**: 40–49 (in Persian).
- Meretoja R, Leino-Kilpi H. Comparison of competence assessments made by nurse managers and practicing nurses. *J. Nurs. Manag.* 2003; **11**: 404–409.
- Meretoja R, Eriksson E, Leino-Kilpi H. Indicators for competent nursing practice. *J. Nurs. Manag.* 2002; **10**: 95–102.
- Meretoja R, Isoaho H, Leino-Kilpi H. Nurse Competence Scale: development and psychometric testing. *J. Adv. Nurs.* 2004a; **47**: 124–133.
- Meretoja R, Leino-Kilpi H, Kaira AM. Comparison of nurse competence in different hospital work environments. *J. Nurs. Manag.* 2004b; **12**: 329–336.
- Redfern S, Norman IJ, Calman L, Watson R, Murrells T. Assessing competence to practice in nursing: a review of the literature. *Res. Papers Educ.* 2002; **17**: 51–77.
- Richardson A. Personal professional profiles. *Nurs. Stand.* 1998; **12**: 35–40.
- Safadi R, Jaradeh M, Bandak A. Competence assessment of nursing graduates of Jordanian universities. *Nurs. Health Sci.* 2010; **12**: 147–154.
- Salonen AH, Kaunonen M, Meretoja R, Tarkka MT. Competence profiles of recently registered nurses working in intensive and emergency settings. *J. Nurs. Manag.* 2007; **15**: 792–800.
- Tabari Khomeiran R, Yekta ZP, Kiger AM, Ahmadi F. Professional competence: factors described by nurses as influencing their development. *Int. Nurs. Rev.* 2006; **53**: 66–72.
- Watson R, Calman L, Norman IJ, Redfern S, Murrells T. Assessing clinical competence in student nurses. *J. Clin. Nurs.* 2002; **11**: 554–555.
- Yekta ZP, Badr FR, Khatooni A. [Nursing students' viewpoint about their clinical competencies and their achievement level.] *Iran. J. Nurs. Res.* 2007; **1**: 7–14 (in Persian).

APPENDIX I

Items of the Nurse Competence Scale

Item number	Item	Item number	Item
Helping role		Therapeutic interventions	
1	Planning patient care according to individual needs	39	Planning own activities flexibly according to clinical situation
2	Supporting patients' coping strategies	40	Making decisions concerning patient care, taking the particular situation into account
3	Evaluating critically own philosophy in nursing	41	Co-ordinating multidisciplinary team's nursing activities
4	Modifying the care plan according to individual needs	42	Coaching the care team in performance of nursing interventions
5	Utilizing nursing research findings in relationships with patients	43	Updating written guidelines for care
6	Developing the treatment culture of my unit	44	Providing consultation for the care team
7	Decision-making guided by ethical values	45	Utilizing research findings in nursing interventions
Teaching-coaching		46	Evaluating systematically patient care outcomes
8	Mapping out patient education needs carefully	47	Incorporating relevant knowledge to provide optimal care
9	Finding optimal timing for patient education	48	Contributing to further development of multidisciplinary clinical paths
10	Mastering the content of patient education	Ensuring quality	
11	Providing individualized patient education	49	Committed to my organization's care philosophy
12	Co-ordinating patient education	50	Able to identify areas in patient care needing further development and research
13	Able to recognize family members' needs for guidance	51	Evaluating critically my unit's care philosophy
14	Acting autonomously in guiding family members	52	Evaluating systematically patients' satisfaction with care
15	Taking student nurses' level of skill acquisition into account in mentoring	53	Utilizing research findings in further development of patient care
16	Supporting student nurses in attaining goals	54	Making proposals concerning further development and research
17	Evaluating patient education outcome together with patient	Work role	
18	Evaluating patient education outcomes with family	55	Able to recognize colleagues' need for support and help
19	Evaluating patient education outcome with care team	56	Aware of the limits of my own resources
20	Taking active steps to maintain and improve my professional skills	57	Professional identity serves as resource in nursing
21	Developing patient education in my unit	58	Acting responsibly in terms of limited financial resources
22	Developing orientation programs for new nurses in my unit	59	Familiar with my organization's policy concerning division of labor and co-ordination of duties
23	Coaching others in duties within my responsibility area	60	Co-ordinating student nurse mentoring in the unit
Diagnostic functions		61	Mentoring novices and advanced beginners
24	Analyzing patients' well-being from many perspectives	62	Providing expertise for the care team
25	Able to identify patients' need for emotional support	63	Acting autonomously
26	Able to identify family members' need for emotional support	64	Guiding staff members to duties corresponding to their skill levels
27	Arranging expert help for patient when needed	65	Incorporating new knowledge to optimize patient care
28	Coaching other staff members in patient observation skills	66	Ensuring smooth flow of care in the unit by delegating tasks
29	Coaching other staff members in use of diagnostic equipment	67	Taking care of myself in terms of not depleting my mental and physical resources
30	Developing documentation of patient care	68	Utilizing information technology in my work
Managing situations		69	Co-ordinating patients' overall care
31	Able to recognize situations posing a threat to life early	70	Orchestrating the whole situation when needed
32	Prioritizing my activities flexibly according to changing situations	71	Giving feedback to colleagues in a constructive way
33	Acting appropriately in life-threatening situations	72	Developing patient care in multidisciplinary teams
34	Arranging debriefing sessions for the care team when needed	73	Developing work environment
35	Coaching other team members in mastering rapidly changing situations		
36	Planning care consistently with resources available		
37	Keeping nursing care equipment in good condition		
38	Promoting flexible team cooperation in rapidly changing situations		

The Nurse Competence Scale is reproduced with the kind permission of the authors (Meretoja *et al.*, 2004a).